June 25, 1963 H. G. JENSEN 3,095,115

DELIVERY MECHANISM FOR VENDING MACHINES

Filed May 27, 1960 2 Sheets-Sheet 1

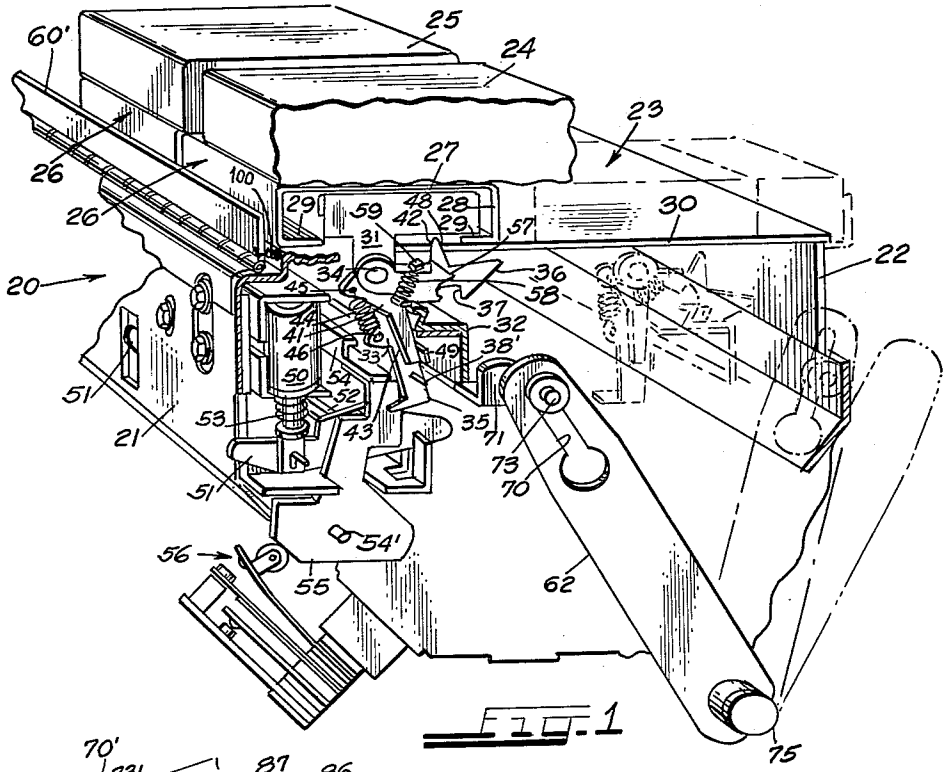


FIG. 1

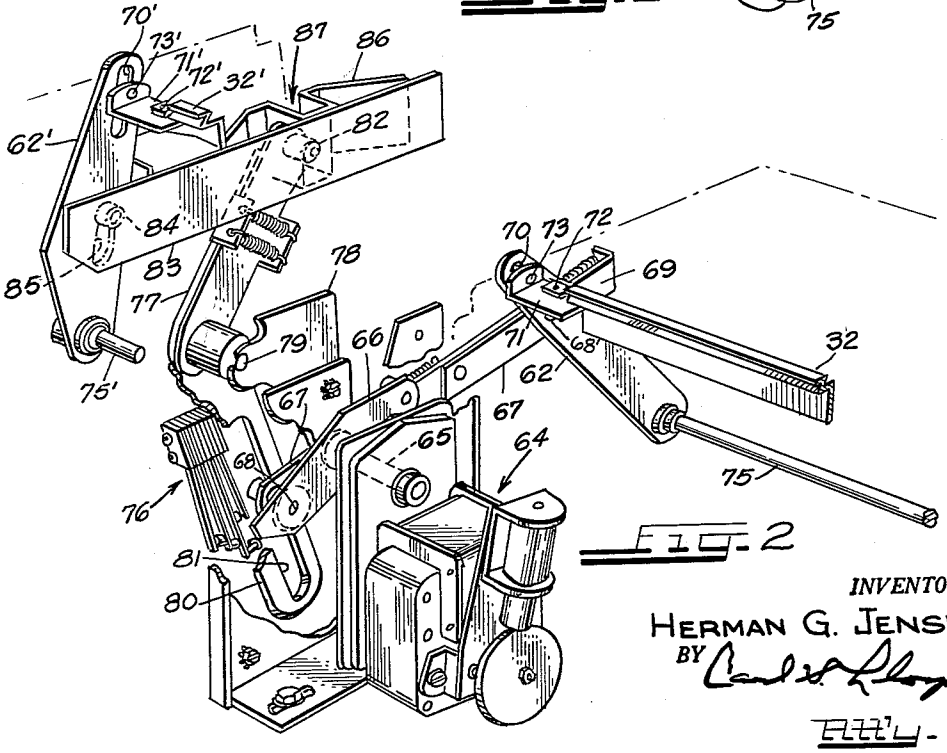


FIG. 2

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DELIVERY MECHANISM FOR VENDING MACHINES

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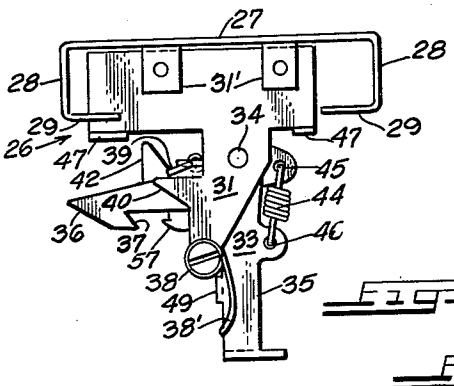


Fig. 3

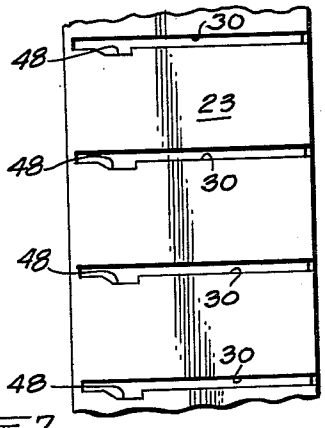


Fig. 7

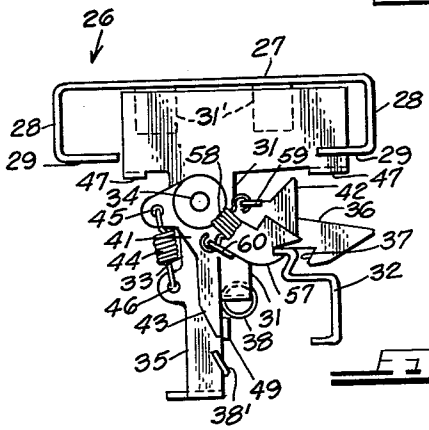


Fig. 4

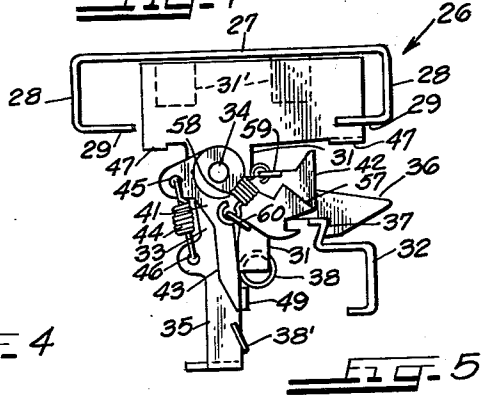


Fig. 5

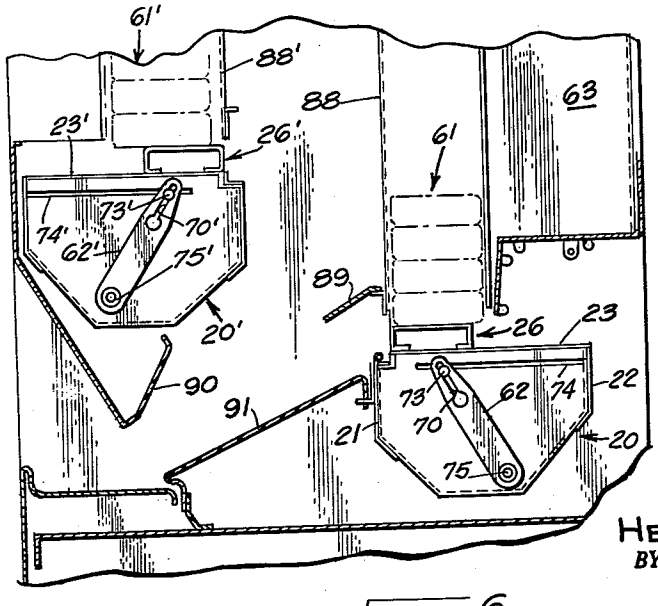


Fig. 6

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3,095,115
DELIVERY MECHANISM FOR VENDING MACHINES

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11 Claims. (Cl. 221—129)

This invention relates to vending machines of the type livery mechanism for use in such machines which will dis- of articles to be dispensed and, more particularly, to a delivery mechanism for use in such machines which will dispense the lowermost article from a selected one of said columns.

More specifically, my invention relates to an automatic delivery mechanism including a reciprocating bar and a plurality of article-supporting delivery slides adapted to be selectively coupled to said bar.

The embodiment to be described herein relates to a delivery mechanism for use in cigarette vending machines but it will be understood that the invention has utility with respect to various other vending machines of the type having one or more rows of columns containing stacks of articles to be dispensed.

One of the objects of this invention is to provide a delivery mechanism including a frame with a horizontally disposed flat upper surface and a plurality of sliding members mounted upon said surface and normally positioned to support stacks of articles, but which are adapted to be selectively coupled to a reciprocating bar so as to be moved from beneath a selected column or stack and then returned thereto whereby the lowermost article in said stack will be ejected.

Another important object of this invention is to provide a particular combination of two such mechanisms in a vending machine wherein two reciprocating bars are moved simultaneously in opposite directions, one of said mechanisms being common to a front row of merchandise columns and the other being common to a rear row of such columns.

These and other objects and advantages of the invention will be apparent from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective sectional view, partly broken away, of a delivery mechanism embodying my invention;

FIG. 2 is a perspective view of an electric motor and linkage means for simultaneously reciprocating two delivery bars in opposite directions;

FIG. 3 is a side elevational view of a delivery slide;

FIG. 4 is an elevational view showing the opposite side of said delivery slide and illustrating the manner in which the slide is engaged by a reciprocating bar on its return stroke;

FIG. 5 is a view similar to FIG. 4 but showing such engagement during the initial stroke of said bar;

FIG. 6 is a side elevational view, partly in section and partly broken away, illustrating the manner in which two such mechanisms are employed in combination in accordance with the invention; and

FIG. 7 is a fragmentary top plan view illustrating the horizontally disposed flat upper surface of the delivery mechanism and showing a plurality of transverse guide slits which are formed therein.

Referring first to FIG. 1, a delivery mechanism is illustrated generally at 20. Said mechanism is provided with a frame having a front wall 21, a rear wall 22, and a flat upper surface 23. The frame surface 23 is disposed in a horizontal plane and extends the full length of a row of columns containing stacks of articles to be dispensed.

Packages of merchandiise such as cigarettes are indi-

cated at 24 and 25, respectively, and it will be understood that such packages merely represent the lowermost articles in columns which may contain stacks of articles (e.g. each column may contain 25 or more packages of cigarettes, one package resting upon another). Two such columns are represented but it will further be understood that in a cigarette vending machine embodying said mechanism there may be ten or more such columns in a single row.

A plurality of delivery slides indicated generally at 26 are mounted upon the horizontal surface 23 so as to be adapted to slide thereon, one of said slides normally being positioned beneath each column so as to support a stack of articles. FIG. 1 shows a pair of delivery slides in their normal positions beneath the lowermost articles in their respective columns.

A delivery slide 26 is shown in detail in FIGS. 3–5 and it will be seen that in this embodiment each slide is channel-shaped and has an upper article-supporting portion 27 with legs 28 which are bent under so as to provide sliding surfaces 29. The slides are positioned upon the frame surface 23 so that the bent under portions 29 may slide upon said frame surface. Columns or stacks of articles to be dispensed may then be supported upon the respective upper portions 27 of said slides.

The upper surface 23 of the frame has formed therein a plurality of transverse guide slits 30 (see FIG. 7), there being one such guide slit for each delivery slide. The delivery slides have downwardly projecting guide members 31 which are accommodated in the slits 30 so as to project beneath the surface 23. Each such guide member 31 is affixed to its respective slide by spot welding the upper portion of said member to a pair of anchor plates 31' which depend from the top portion 27 on said slides (see FIG. 3).

Delivery of the lowermost article from a selected stack or column is accomplished by sliding the corresponding delivery slide 26 along the surface 23 so as to move it from beneath said stack and then returning it to its original position. Thus, when a delivery slide is moved from beneath a stack of articles said stack will drop so as to be supported by the surface 23, and when the slide is returned the lowermost article will be ejected (viewing FIG. 1, ejection would take place from the left side of the mechanism).

A delivery bar 32 is positioned beneath the surface 23 and extends the length of the row of columns. Delivery of the lowermost article from a selected column is effected by coupling the corresponding delivery slide 26 to the bar 32 and reciprocating said bar whereby the delivery slide will be moved as described above to cause an article to be ejected. The means for effecting such coupling and certain related mechanism will now be described in detail in connection with one of said slides, all of which are identical.

A bell-crank 33 is pivotally mounted on the guide member 31 (see FIGS. 1 and 4) by means of a pin 34. Said bell-crank 33 has one downwardly projecting arm 35 and a second arm 36 extending therefrom at an angle of approximately 90 degrees, the latter arm being provided with a hook 37 for coupling the slide 26 to the delivery bar 32. The bell-crank is shown in its operative or coupling position in FIG. 4 and it is biased to this position by means of a torsion spring 38 (see FIG. 3 which illustrates the opposite side of the mechanism shown in FIG. 4) which is connected to the guide member 31 and has its free end 38' in engagement with the downwardly projecting arm 35. In this position a stop 39, which is integral with said bell-crank, abuts against a stop 40 on the guide member.

A latch lever 41 is also pivotally mounted on the guide member by the pin 34 and said lever serves to lock the slide 26 in its normal position beneath a stack of articles.

The latch lever has one arm with an upward projection or latch 42 thereon and a second downwardly projecting arm 43 which serves as a stop. A tension spring 44 has one end connected to said latch lever at 45 and its other end anchored to the bell-crank arm 35 at 46 so as to bias the latch lever in a counter-clockwise direction (as viewed in FIG. 4) with respect to said bell-crank.

The delivery slides 26 are mounted for sliding movement on the delivery mechanism frame as shown in FIG. 1 and when thus positioned two bent locking arms 47 on the guide member 31 (see FIG. 3) are disposed immediately beneath the frame surface 23 so as to prevent upward movement of the slide with respect to said frame. It will also be noted that when a slide is in its normal article-supporting position the projection 42 on the latch lever 41 projects upwardly through an offset cutout 48 in the respective guide slit 30 (see FIG. 7) so as to lock the slide in said position.

The arm 43 on the latch lever abuts against a stop 49 on the bell-crank arm 35 so that (viewing FIG. 4) the latch lever may not be moved from this position in a counter-clockwise direction with respect to the bell-crank but it is movable in a clockwise direction (against the force of spring 44) with respect thereto.

Referring again to FIG. 1, a plurality of solenoids 50 are provided, one for each delivery slide 26, and each is arranged to actuate a corresponding release lever 51, a plurality of said release levers being mounted on a rod 52 which extends the length of the delivery mechanism. A compression spring 53 is provided on the armature of each solenoid to bias the corresponding release lever to the position shown whereby said lever will engage the lower end of the bell-crank arm 35 and maintain the bell-crank in its counter-clockwise or inoperative position.

When a customer deposits the proper amount of coins and depresses a selector button (not shown) to select a particular column, the solenoid 50 associated with said column will be energized to effect the following sequence of operations: the release lever 51 will be rotated clockwise to release the bell-crank arm 35; the bell-crank will be rotated to its clockwise or operative position by the torsion spring 38 so as to bring the hook 37 into coupling position; and the latch lever 41 will be rotated clockwise to its inoperative position (due to the engagement between the stop 49 and the arm 43) thus freeing the delivery slide 26 for sliding movement.

A start bar 54 which also extends the full length of the row of columns is pivotally mounted on a pin 54' and is arranged so that when any one of the bell-cranks 33 is moved to operative or coupling position the corresponding bell-crank arm 35 will engage said bar. The bar 54 has a cam 55 affixed at one end and such engagement causes said bar to be pivoted about the pin 54' and thus causes the cam 55 to close a switch 56. The closing of the switch 56 initiates the movement of the reciprocating bar 32 as will be more fully explained hereinafter.

When the switch 56 is thus closed the bar 32 is moved to the right (viewing FIG. 1) carrying with it the delivery slide 26 which corresponds to the selected column. The manner in which the bar 32 engages a coupled slide 26 on its forward stroke is shown in FIG. 5. When the bar 32 reaches the end of its initial stroke the upper channel portion 27 of the slide will have been moved from beneath its stack of articles and the lowermost article in said stack will have dropped to the frame surface 23. The bar 32 then begins its return stroke.

A reset pawl 57 is also pivotally mounted on the guide member 31 by the pin 34, and a spring link 58 has one end connected to the latch lever at 59 and its other end anchored to said pawl at 60 so as to yieldingly suspend the latter. As the bar 32 begins its return stroke it engages the reset pawl 57 (see FIG. 4) which will be positioned for such engagement only when the corresponding bell-crank 33 is in operative or coupling position. If the pawl 57 were not provided and the bar 32 had to engage the guide member 31 on its return stroke the bar would have to engage the entire row of such guide members in order to return the selected slide to its initial position. Said reset pawl 57 permits the bar 32 to return a selected slide to its original position, or slightly beyond (to insure proper locking), without being subjected to the forces and strains which would be incident to engagement with the entire row of delivery slides.

On its return stroke the selected delivery slide ejects the lowermost article from the stack and is again positioned beneath the remaining articles in said stack. It will also be understood that as said slide approaches such position the lower end of the bell-crank arm 35 will again engage the release lever 51 so as to rotate the bell-crank counter-clockwise and yieldingly urge the projection 42 on the latch lever 41 upwardly. Consequently, when the delivery slide reaches its original position the projection 42 will have reached the respective cutout 48 (see FIG. 7) and will snap upwardly so as to lock said slide in position.

In known manner, an empty bar 60' may be pivotally mounted on the front wall 21 of the frame as shown in FIG. 1, and said bar may be yieldingly urged to an upright position by spring means such as the spring element 100 shown mounted between the empty bar 60' and the front wall 21 of the frame so as normally to urge the empty bar 60' toward the position shown in FIG. 1. This bar will be deflected by an article being ejected and such deflection may be utilized to close a switch in the circuit of a cancel solenoid and a coin deposit solenoid (not shown) whereby upon delivery of an article the deposited coins will be dropped to a cash box and the customer's credit cancelled.

Reference is next made to FIG. 6 which illustrates a combination of two delivery mechanisms of the type above described in a vending machine. A stack of articles to be dispensed is indicated at 61 and it will be understood that said stack represents a row of rear columns which may comprise ten or more stacks. Similarly, a front stack of articles is shown at 61' to represent a front row of columns. Front and rear containers for holding stacks of articles are shown at 88' and 88 respectively. A rear delivery mechanism common to the row of rear columns is shown at 20 and a similar front delivery mechanism common to the front columns is shown at 20'.

A crank arm 62 serves to move a rear delivery bar 32 (see FIG. 2) first rearwardly and then forwardly and a crank arm 62' serves to simultaneously move a front delivery bar 32' first forwardly and then rearwardly (as will be described more fully hereinafter). When the proper amount of coins is deposited and a selector button (not shown) on the exterior of the machine is depressed, a corresponding solenoid (which may be associated with a delivery slide in either the front or the rear delivery mechanism) will be energized to couple a respective delivery slide to the reciprocating delivery bar 32 common thereto. The switch 56 is then closed and, as previously described, the coupled slide is reciprocated to cause ejection of the lowermost article from the selected column.

Means (not shown) are normally provided to prevent a customer from making more than one selection at a time. Therefore, it will be understood that while both the front and rear delivery bars 32' and 32, respectively, will be reciprocated (in opposite directions) simultaneously, only one of said bars will have a slide 26 coupled thereto, and thus only one will actually effect a delivery during any particular delivery cycle.

Deflector plates 89, 90 and 91 are provided to guide an ejected article to an opening at the front of the vending machine.

The space 63 behind the rear columns is provided to accommodate a row of auxiliary shaft columns which

could also be served by the rear delivery mechanism. However, such shift columns are well known in the art and will not be described herein since they form no part of the present invention.

The means for reciprocating two delivery bars simultaneously will now be described and for this purpose reference is made to FIG. 2. A segment of the delivery bar for the rear mechanism is shown at **32** and a segment of the corresponding bar in the front delivery mechanism is indicated at **32'**. Both of said bars are shown in their normal positions wherein the delivery slides corresponding to the front and rear rows of columns will all be in their article-supporting positions, each beneath its respective stack or column of articles.

An electric motor is indicated generally at **64** and circuitry (not shown) is provided to connect said motor to a source of power (when the switch **56** is closed) for a time sufficient to cause a motor shaft **65** to be rotated one complete revolution.

A crank **66** is fixedly mounted on the motor shaft **65** for rotation therewith and one end of said crank is pinned to a rear drive link **67** by means of a pin **68**. The rearward end of said link (indicated at **69**) is connected to the crank arm **62** by any suitable means such as a connecting pin **68'**, as shown in FIG. 2. The crank arm **62** is provided with a slot **70** (best shown in FIG. 1). An adapter **71** has one end affixed to the rear delivery bar by rivets or the like at **72** and its other end carries a pin **73** which is accommodated in said slot. The adapter **71** is arranged to slide in a horizontal guide slot **74** (see FIG. 6) formed in the end of the delivery mechanism frame.

A rod **75** has its ends mounted in bearings in the respective end walls of the mechanism frame (see FIG. 6) so as to serve as a pivot for the crank arm **62**. It is desirable to provide a similar crank arm **62**, adapter **71** and guide slot **74** at the opposite end (not shown) of the frame and in such a case the rod **75** can be affixed to both crank arms so as to transmit a torsional driving moment from one to the other.

It will now be understood that when the motor shaft **65** is rotated one complete revolution the rear delivery bar **32** will be moved first rearwardly and then forwardly back to its original position. The motor circuit includes a carryover switch **76** (see FIG. 2) which is arranged to be opened after the motor crank **66** has completed one full revolution.

A bell-crank **77** is pivotally mounted to a supporting plate **78** by a pin **79** and has an arm **80** with a slot **81** provided therein. The pin **68**, which connects the motor crank to the rear drive link **67**, projects through the latter and is accommodated in the slot **81** whereby the bell-crank **77** will be rocked back and forth about the pin **79** by the motor **64**. The other end of the bell-crank **77** carries a pin **82**.

A front drive link **83** carries a pin **84** which is accommodated in a slot **85** in the front crank arm **62'**. Said crank arm is connected to the front delivery bar **32'** by means of an adapter **71'** which carries a pin **73'**, said pin being accommodated in a slot **70'** formed in the upper end of the crank arm. The adapter is affixed to the front delivery bar at **72'**. The front crank arm **62'** is also mounted on a rod **75'** and a similar crank arm may also be provided at the opposite end of the front delivery bar in the manner previously described.

The front drive link **83** has a bracket **86** welded thereon and said bracket is formed to provide a U-shaped recess **87**. The pin **82** on the upper arm of the bell-crank **77** is positioned in said recess in such a manner that when said bell-crank is rocked back and forth about the pin **79** it will reciprocate the link **83**, which in turn will cause the front delivery bar **32'** to be reciprocated.

It will now be understood that when the motor shaft **65** is rotated one complete revolution the rear delivery bar **32** will be moved first rearwardly and then forwardly in a horizontal plane and the front delivery bar will be moved first forwardly and then rearwardly in a horizontal plane.

This invention can, of course, be applied in various ways and the present description should, therefore, be regarded as disclosing only an illustrative embodiment of the invention from which no unnecessary limitations should be implied.

I claim:

1. In a delivery mechanism for vending machines of the type adapted to dispense the lowermost article from a selected one of a row of columns containing stacks of articles to be dispensed, a frame including a horizontally disposed upper surface extending the length of said row of columns; a plurality of delivery slides mounted upon said horizontal surface and adapted to slide in a horizontal plane thereon, one of said slides normally being positioned beneath each of said columns so as to support a stack of articles, and each thereof having a downwardly extending plate thereon disposed at least partially below said horizontal surface; a reciprocating bar extending the length of said row of columns and positioned beneath said horizontal surface; a plurality of coupling means one of which is associated with each of said slides and each adapted upon actuation to couple its respective delivery slide to said bar; means for selectively conditioning said slides and coupling means for actuation including a plurality of latch-release mechanisms, one mounted on each of said downwardly extending plates for causing actuation of the related coupling means; and means for reciprocating said bar whereby the selected delivery slide will be moved from beneath its stack of articles and thence returned to its normal position so as to eject the lowermost article from said selected column on its return stroke.

2. In a delivery mechanism for vending machines of the type adapted to dispense the lowermost article from a selected one of a row of columns containing stacks of articles to be dispensed, a frame including a horizontally disposed upper surface extending the length of said row of columns; a plurality of delivery slides mounted upon said horizontal surface and adapted to slide in a horizontal plane thereon, one of said slides normally being positioned beneath each of said columns so as to support a stack of articles, and each thereof having a downwardly extending plate thereon disposed at least partially below said horizontal surface; a reciprocating bar extending the length of said row of columns and positioned beneath said horizontal surface; a plurality of coupling means one of which is associated with each of said slides and each adapted upon actuation to couple its respective delivery slide to said bar; means for selectively conditioning said slides and coupling means for actuation including a plurality of solenoids and a plurality of latch-release mechanisms controlled thereby, one mounted on each of said downwardly extending plates for causing actuation of the related coupling means; and means for reciprocating said bar in a horizontal plane whereby the selected delivery slide will be moved from beneath its stack of articles and thence returned to its normal position so as to eject the lowermost article from said selected column on its return stroke.

3. In a delivery mechanism for vending machines of the type adapted to dispense the lowermost article from a selected one of a row of columns containing stacks of articles to be dispensed, an apparatus comprising a frame including an upper horizontal surface extending the length of said row of columns and having a plurality of transverse guide slits therein, one for each column; a plurality of delivery slides positioned upon said horizontal surface and adapted to slide in a horizontal plane thereon, one of said slides normally being positioned beneath each of said column so as to support a stack of articles; a plurality of guide members, one affixed to each slide, said members being accommodated respec-

tively in said transverse slits so as to project downwardly beneath said horizontal surface; a reciprocating bar extending the length of said row of columns and positioned beneath said horizontal surface; a plurality of coupling means one of which is associated with each of said slides and each adapted upon actuation to couple its respective delivery slide to said bar; means for selectively conditioning said slides and coupling means for actuation including a plurality of latch-release mechanisms, one mounted on each of said downwardly extending guide members for causing actuation of the related coupling means; and means for reciprocating said bar whereby the selected delivery slide will be carried along the path of its respective guide slit so as to be moved from beneath its stack of articles and thence will be returned to its normal position whereby the lowermost article from said selected column will be ejected.

4. In a delivery mechanism for vending machines of the type adapted to dispense the lowermost article from a selected one of a row of columns containing stacks of articles to be dispensed, an apparatus comprising a frame including an upper horizontal surface extending the length of said row of columns and having a plurality of transverse guide slits therein, one for each column; a plurality of delivery slides positioned upon said horizontal surface and adapted to reciprocate in a horizontal plane thereon, one of said slides normally being positioned beneath each of said columns so as to support a stack of articles; a plurality of guide members, one affixed to each slide, said members being accommodated respectively in said transverse slits so as to project downwardly beneath said horizontal surface; a reciprocating bar extending the length of said row of columns and positioned beneath said horizontal surface; a plurality of coupling means one of which is movably mounted on each of said guide members and each adapted upon actuation to couple its associated delivery slide to said bar; means for selectively conditioning said slides and coupling means for actuation including a plurality of solenoids and a plurality of latch-release mechanisms controlled thereby, one for actuating each of said coupling means; and means for reciprocating said bar in a horizontal plane whereby the delivery slide corresponding to the selected column will be carried along the path of its respective guide slit so as to be moved from beneath its stack of articles and thence will be returned to its normal position whereby the lowermost article from said selected column will be ejected.

5. In a delivery mechanism for vending machines, apparatus of the type set forth in claim 3 in which said latch-release mechanism includes a plurality of latch levers one pivotally mounted on each of said guide members, adapted to lock said delivery slides in their respective normal positions beneath said columns, and means for moving said levers to inoperative positions upon actuation of the coupling means associated therewith.

6. In a delivery mechanism for vending machines, apparatus of the type set forth in claim 4 having a plurality of reset pawls, one pivotally mounted on each of said guide members, said pawls being yieldingly connected to their respective coupling means in such a manner that when an associated coupling means is in its actuated position said pawl will be positioned to engage the reciprocating bar on its return stroke whereby the delivery slide which has been reciprocated may be returned slightly beyond the position of the remaining delivery slides in said mechanism without the latter slides being engaged by said bar.

7. In a vending machine, a row of rear columns and a parallel row of front columns spaced therefrom for containing stacks of articles to be dispensed; a rear delivery mechanism common to the rear columns for dispensing the lowermost article from a selected one of said rear columns, said mechanism including a reciprocating delivery bar adapted to be moved first rearwardly and then forwardly in a horizontal plane so as to effect delivery of an article from a selected column on its forward stroke; a front delivery mechanism common to the front columns for dispensing the lowermost article from a selected on of said front columns, said mechanism including a second reciprocating delivery bar adapted to be moved first forwardly and then readwardly in a horizontal plane so as to effect delivery of an article from a selected column on its rearward stroke; means for selecting one of said columns; and means for reciprocating said delivery bar simultaneously in opposite directions whereby the bar corresponding to the selected column will cause an article to be dispensed therefrom.

8. In a vending machine, an apparatus comprising a row of rear columns and a parallel row of front columns spaced therefrom for containing stacks of articles to be dispensed; a plurality of reciprocating delivery slides, one of said slides normally being positioned beneath each of said columns so as to support a stack of articles; a rear delivery mechanism common to the rear columns for dispensing the lowermost article from a selected one of said rear columns, said mechanism including a reciprocating delivery bar adapted to be moved first rearwardly and then forwardly in a horizontal plane; a front delivery mechanism common to the front columns for dispensing the lowermost article from a selected one of said front columns, said mechanism including a second reciprocating delivery bar adapted to be moved first forwardly and then rearwardly in a horizontal plane; coupling means affixed to each of said delivery sides respectively and adapted upon actuation to couple the associated delivery slide to its corresponding delivery bar; means for selecting one of said columns including a plurality of solenoids, one for actuating each of said coupling means; and means for reciprocating said delivery bars simultaneously in opposite directions whereby the delivery slide corresponding to the selected column will be moved from beneath its stack of articles and thence returned to its normal position so as to eject the lowermost article from said selected column on its return stroke.

9. In a vending machine, a row of rear columns and a parallel row of front columns spaced therefrom for containing stacks of articles to be dispensed; a rear delivery mechanism including a frame having an upper horizontal surface extending the length of said row of rear columns, a plurality of delivery slides mounted upon said horizontal surface and adapted to slide thereon, one of said slides normally being positioned beneath each of said rear columns so as to support a stack of articles, a reciprocating bar extending the length of said row of rear columns and positioned beneath said horizontal surface, said bar being adapted to be moved first rearwardly and then forwardly in a horizontal plane, a plurality of coupling means associated with each of said slides respectively and each adapted upon actuation to couple its respective delivery slide to said bar; a front delivery mechanism common to the front columns and similar to said rear delivery mechanism but having a reciprocating bar adapted to be moved first forwardly and then rearwardly in a horizontal plane; means for selecting one of said columns including a plurality of actuating means, one for actuating each of said coupling means; and means for reciprocating said bars simultaneously in opposite directions whereby the delivery slide corresponding to the selected column will be moved from beneath its stack of articles and thence returned to its normal position so as to eject the lowermost article from said selected column on its return stroke.

10. In a vending machine, a row of rear columns and a parallel row of front columns spaced therefrom for containing stacks of articles to be dispensed; a rear delivery mechanism including a frame having an upper hori-

zontal surface extending the length of said row of rear columns, said surface having a plurality of transverse guide slits therein, one for each rear column, a plurality of delivery slides positioned upon said horizontal surface and adapted to slide thereon, one of said slides normally being positioned beneath each of said rear columns so as to support a stack of articles, a plurality of guide members, one affixed to each slide, said members being accommodated respectively in said transverse slits so as to project downwardly beneath said horizontal surface, a reciprocating bar extending the length of said row of rear columns and positioned beneath said horizontal surface, said bar being adapted to be moved first rearwardly and then forwardly in a horizontal plane, a plurality of coupling means movably mounted on each of said guide members respectively and each adapted upon actuation to couple its associated delivery slide to said bar; a front delivery mechanism common to the front columns and similar to said rear delivery mechanism but having a reciprocating bar adapted to be moved first forwardly and then rearwardly in a horizontal plane; means for selecting one of said columns including a plurality of solenoids, one for actuating each of said coupling means; and means for reciprocating said bars simultaneously in opposite directions whereby the delivery slide corresponding to the selected column will be carried along the path of its respective guide slit so as to be moved from beneath its stack of articles and thence will be returned to its normal position whereby the lowermost article from said selected column will be ejected.

11. In a vending machine, apparatus of the type set forth in claim 8 wherein the means for reciprocating said delivery bars simultaneously comprises an electric motor and linkage means connecting said motor to each of said delivery bars.

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